



# Offer and Acceptance

State of Arizona  
State Procurement Office  
100 N. 15<sup>th</sup> Ave. Suite 201  
Phoenix, AZ 85007

SOLICITATION NO.: ADSP016-00005912 Request  
for Qualifications: 2016 Annual Professional  
Services List

PAGE  
1

Offeror: TBC, Inc.

OF  
1

## OFFER

### TO THE STATE OF ARIZONA:

The Undersigned hereby offers and agrees to furnish the material, service or construction in compliance with all terms, conditions, specifications and amendments in the Solicitation and any written exceptions in the offer. Signature also certifies Small Business status.

TBC, Inc.

Company Name

1501 W. Fountainhead Parkway, Suite 330

Address

Tempe

AZ

85282

City

State

Zip

taw@TBCxInc.com

Contact Email Address

Signature of Person Authorized to Sign Offer

Todd A. Watson

Printed Name

Commissioning Authority

Title

Phone: 480-321-3454

Fax: 480-621-3445

By signature in the Offer section above, the Offeror certifies:

1. The submission of the Offer did not involve collusion or other anticompetitive practices.
2. The Offeror shall not discriminate against any employee or applicant for employment in violation of Federal Executive Order 11246, State Executive Order 2009-9 or A.R.S. §§ 41-1461 through 1465.
3. The Offeror has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer. Failure to provide a valid signature affirming the stipulations required by this clause shall result in rejection of the offer. Signing the offer with a false statement shall void the offer, any resulting contract and may be subject to legal remedies provided by law.
4. The Offeror certifies that the above referenced organization X IS/     IS NOT a small business with less than 100 employees or has gross revenues of \$4 million or less.

## ACCEPTANCE OF OFFER

The Offer is hereby accepted.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the solicitation, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by the State.

This Contract shall henceforth be referred to as Contract No. ADSP016-00005912

The effective date of the Contract is March 1 2016

The Contractor is cautioned not to commence any billable work or to provide any material or service under this contract until Contractor receives purchase order, contract release document or written notice to proceed.

State of Arizona  
Awarded this

1<sup>st</sup> day of March 2016

Procurement Officer



ATTACHMENT I – General Qualifications  
**ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE**  
NO: ADSP016-00005912

STATE PROCUREMENT OFFICE  
Department of Administration  
100 North 15<sup>th</sup> Avenue, Suite 201  
Phoenix, Arizona 85007

a. FIRM (OR BRANCH OFFICE ) NAME:	Total Building Commissioning (TBC)
b. FIRM (OR BRANCH OFFICE) STREET:	1501 West Fountainhead Parkway, Suite 330
c. FIRM (OR BRANCH OFFICE) CITY:	Tempe
d. FIRM (OR BRANCH OFFICE) STATE:	AZ
e. FIRM (OR BRANCH OFFICE) ZIP CODE:	85282
f. YEAR ESTABLISHED:	1986
(g1). OWNERSHIP - TYPE:	Corporation
(g2). OWNERSHIP - SMALL BUSINESS STATUS:	Small—AZ; Small—Federal
h. POINT OF CONTACT NAME AND TITLE:	Todd A. Watson, Commissioning Authority
i. POINT OF CONTACT TELEPHONE NUMBER:	480-621-3454
j. POINT OF CONTACT E-MAIL ADDRESS:	taw@tbcxinc.com
k. NAME OF FIRM (If block 1a is a branch office):	



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**2. EMPLOYEES BY DISCIPLINE**

a. Discipline Title	b. Function: Primary (P) or Secondary (S)	c. No. of Employees - Firm	d. No. of Employees - Branch
Project Manager	S	9	
Electrical Engineer	P	2	
Fire Protection Engineer	P	2	
Mechanical Engineer	P	5	
Technician/Analyst	P	1	
<b>Total</b>		<b>10</b>	



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**3. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST YEAR**

a. Approximate No. of Projects	b. Experience	c. Revenue Index Number (see below)
3	Commercial Building (Low Rise); Shopping Centers	2
1	Educational Facilities; Classrooms	4
4	Hospital and Medical Facilities	1
2	Laboratories; Medical Research Facilities	3
13	Office Buildings; Industrial Parks	3
4	Community Facilities	3
26	LEED Accredited A/E	4
23	LEED Independent 3 <sup>rd</sup> Party Building Commissioning	4

**PROFESSIONAL SERVICES REVENUE INDEX NUMBER**

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>1. Less than \$100,000</li> <li>2. \$100,000 to less than \$250,000</li> <li>3. \$250,000 to less than \$500,000</li> <li>4. \$500,000 to less than \$1 million</li> <li>5. \$1 million to less than \$2 million</li> </ul> | <ul style="list-style-type: none"> <li>6. \$2 million to less than \$5 million</li> <li>7. \$5 million to less than \$10 million</li> <li>8. \$10 million to less than \$25 million</li> <li>9. \$25 million to less than \$50 million</li> <li>10. \$50 million or greater</li> </ul> |
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**4. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT** *(Complete one Section 4 for each key person.)*

a. NAME <b>Todd A. Watson, CxA, LEED AP, QCxP</b>		b. ROLE IN THIS CONTRACT Commissioning Authority		c. YEARS EXPERIENCE	
				1. TOTAL 18	2. WITH CURRENT FIRM 2
d. FIRM NAME AND LOCATION <i>(City and State)</i> Total Building Commissioning, Tempe, AZ					
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> A.S. Computer Technology			f. CURRENT PROFESSIONAL REGISTRATION <i>(STATE AND DISCIPLINE)</i> Certified Commissioning Authority (CxA) / AABC Commissioning Group (ACG) / 2013 Green Building Certification Institute, LEED AP Qualified Commissioning Process Provider (QCxP) Certified Corrosion Consultant, Purdue University		
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Publications, Organizations, Training, Awards, etc.)</i> With 18 years of experience in the commissioning and design industry, Mr. Todd Watson, CxA, LEED AP, QCxP, is a hands-on commissioning authority with an aggressive approach to the commissioning process and integration into clients' projects. He is dedicated to collaborating with owners, design professionals and contractors, to ensure successful, high-performance projects that meet the owners' project requirements (OPR). Mr. Watson possesses eight years of construction experience. This gives him added insight into the design, building and commissioning process and the constructability of his designs from a contractor's perspective. With a lessons learned approach to each of his projects, Mr. Watson has created instrumental processes that have streamlined commissioning and design projects, which helps to maintain budgets. He is a qualified and experienced project manager and is comfortable managing teams commissioning/designing multiple projects, observing the progression of each project, and maintaining client relations.					
H. RELEVANT PROJECTS					
1)	(1) TITLE AND LOCATION <i>(City and State)</i> Arizona State University Lattie F. Coor Hall Generator Reliability Phase 2B, Tempe AZ		(2) Year Completed		
			Professional Services 2013	Construction <i>(if applicable)</i> 2014	
(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE		<input checked="" type="checkbox"/> Check if project performed with current firm			
Total Building Commissioning, is providing the required building commissioning services for achieving a constructed and operating building systems that meets the design intent and occupant's expectations. Commissioning activities are being provided during the Design, Construction and Acceptance Phases of the building delivery process. This project consisted of upgrading the HVAC and electrical infrastructure for the Intermediate Data Frame (IDF) and Main Data Frame (MDF) rooms within the facility. This includes installation of mechanical split systems, standby generator, and redundant automatic transfer switches and UPS systems to all critical loads. The mechanical and electrical systems are anticipated to be monitored by the central plant.					
2)	(1) TITLE AND LOCATION <i>(City and State)</i> Arizona State University ISTB 1 Commissioning (Phase 2b of the ASU Redundancy & Reliability Upgrade), Tempe, Arizona		(2) Year Completed		
			Professional Services 2013	Construction <i>(if applicable)</i> 2014	
(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE		<input checked="" type="checkbox"/> Check if project performed with current firm			
The project involves commissioning the systems for the research facility and data center areas affirming "no operational failure" can occur. The commissioning process is to test and verify that any maintenance or equipment failure would result in the system's sensing the problem and automatically shift to a backup/redundant system.					
3)	(1) TITLE AND LOCATION <i>(City and State)</i> Nu Skin Innovation Center and Downtown Expansion Project Commissioning, LEED® Silver Provo, UT		(2) Year Completed		
			Professional Services 2010	Construction <i>(if applicable)</i> 2013	
(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE		<input checked="" type="checkbox"/> Check if project performed with current firm			
Total Building Commissioning (TBC) commissioned the \$100 million, 164,000 sq. ft. expansion of Nu Skin's global headquarters in Provo, UT. As the project's commissioning authority, TBC commissioned systems for the Data Center, Innovation Center, and the Building Envelope / Exterior.					



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a. NAME <b>Ray Dodd, PE, LEED AP, CxA</b>	b. ROLE IN THIS CONTRACT Principal Commissioning Authority	c. YEARS EXPERIENCE	
		2. TOTAL 27	2. WITH CURRENT FIRM 3

d. FIRM NAME AND LOCATION (*City and State*)  
 Total Building Commissioning, Tempe, AZ

e. EDUCATION ( <i>DEGREE AND SPECIALIZATION</i> ) B.S. Mechanical Engineering	f. CURRENT PROFESSIONAL REGISTRATION ( <i>STATE AND DISCIPLINE</i> ) Registered Professional Engineer / Utah #7521532-2202 Registered Professional Engineer / Colorado #29078 Leadership in Energy and Environmental Design Accredited Professional (LEED AP) / Version 2.2 Certified Commissioning Authority (CxA) / AABC Commissioning Group (ACG) / 2010
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g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)  
 Mr. Dodd possesses a wide breadth of experience, totaling more than 25 years, in the mechanical facilities field with extensive knowledge of commercial, industrial, institutional and high-technology mechanical facilities systems. He is a skilled project manager proficient at handling the logistic, technical and communications challenges required in the commissioning, construction, design and sales process. He has been the owner of an HVAC service company, which has given him hands-on experience and provided him with additional insight into constructability of his designs as well as the issues faced by owners and facilities personnel throughout the commissioning process. He has served as a LEED commissioning engineer. Member—PI TAU SIGMA, Mechanical Engineering Honor Society; American Society of Heating, Refrigerating, Air-Conditioning Engineers (ASHRAE); American Society of Energy Engineers (ASEE).

**H. RELEVANT PROJECTS**

(1) TITLE AND LOCATION ( <i>City and State</i> )	(2) Year Completed	
	Professional Services	Construction ( <i>if applicable</i> )
222 South Main, Salt Lake City, UT	2010	2011
(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Total Building Commissioning (TBC) commissioned the following systems at the 154,000 sq. ft., \$45 million tenant finish of seven floors at the 222 South Main building in Salt Lake City, Utah: Electrical; Mechanical; Fire protection; Security; Building Automation System (BAS). This financial services company has designated the high-rise at 222 South Main, Salt Lake City, Utah as a mission-critical regional service center for 1500 associates transferring to the facility in the spring of 2011. The project includes a tenant finish of six office floors, one floor of amenity/conference center space, and several data and technology support spaces. Systems include a 1800 kW dual fuel generator, redundant Uninterruptible Power Supply (UPS) and battery backup, automatic transfer switches on each floor controlled by a programmable logic controller (PLC) and infrastructure upgrades including a new chiller, cooling tower and makeup air handlers. The fit-up of the 154,000 sq. ft. space included a complete under-floor air distribution system and NC 25 sound criteria. In addition to commissioning the building systems, Total Building Commissioning conducted generator and UPS burn-in tests, load-bank testing, integrated system testing and several full-project “pull the plug” tests.		
2) University of Utah Daybreak Specialty Care Center, South Jordan, UT	2011	2011



ATTACHMENT I – General Qualifications

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(3) BRIEF DESCRIPTION (*Brief scope, size, cost, etc.*) AND SPECIFIC ROLE

Check if project performed with current firm

Principal commissioning authority for this approximately \$52 million (budget), 108,000 GSF, 3-story, Type 2A & 2B building. The facility comprises 60% enclosed office / exam room space, 10% open and circulation space, and 30% outpatient surgery space. The facility is designed as a multiservice Medical Office Building including other support services such as pharmaceutical services and cafeteria. The space distribution includes both surgical and clinical components (occupancy codes I and B), and is allocated at approximately 35%/65% respectively. In addition to the building and parking improvements, University AirMed has flight operations and a landing zone incorporated into the development. This is a turn-key project that includes both core & shell construction and tenant improvement build-out. The owner is seeking a Silver Level Certification Standard for LEED® NC 2.2 for New Construction. Mr. Dodd and his team commissioned the following systems: HVAC systems, Building Automation Systems (controls), plumbing and fire suppression systems, electrical systems including “normal” power, emergency power and fire/life safety systems; and security systems.



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a. NAME <b>Larry L. Hackleman, PE, LEED AP, QCxP</b>	b. ROLE IN THIS CONTRACT Project Commissioning Authority/ Electrical and Mechanical Engineer	c. YEARS EXPERIENCE	
		3. TOTAL 21	2. WITH CURRENT FIRM 1

d. FIRM NAME AND LOCATION (*City and State*)  
 Total Building Commissioning, Tempe, AZ

e. EDUCATION ( <i>DEGREE AND SPECIALIZATION</i> ) B.S. Architectural Engineering	f. CURRENT PROFESSIONAL REGISTRATION ( <i>STATE AND DISCIPLINE</i> ) Registered Professional Engineer: Arizona #41990 - Electrical, 2004; Arizona #38532 - Mechanical, 2002; Kansas #14389 - Electrical and Mechanical, 1997 LEED AP - United States Green Building Council (USGBC) Leadership in Energy and Environmental Design, Accredited Professional QCxP - University of Wisconsin at Madison, Qualified Commissioning Process Provider
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g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)  
 Mr. Hackleman has more than 20+ years of electrical and mechanical engineering experience, with an emphasis in electrical engineering design and management, as well as three years of commissioning experience for LEED and non-LEED projects. He is a focused and diligent individual, accustomed to responsibility. He has a strong sense of character and commitment to continual learning and self-improvement. He appreciates the science of engineering, the art of architecture and the importance of integrating the two. He is skilled in project management, engineering design, commissioning, and supervising personnel. He has a successful record of meeting deadlines and budgets, and following projects through completion. He is experienced in acting as a liaison between the MEP design team, architects and contractors and extensive experience in project management, group management, new construction, renovation, design-build, and Integrated Project Delivery teaming. Member – IES, IEEE, ASHE

**H. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION ( <i>City and State</i> )	(2) Year Completed	
		Professional Services	Construction ( <i>if applicable</i> )
1)	Arizona State University Lattie F. Coor Hall Generator Reliability Phase 2B, Tempe AZ	2013	2014
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Mr. Hackleman is the Principal Electrical Commissioning Authority for this 6,000 SF, \$1.6M project. It involved a New Redundant System A/System B UPS systems and distribution to MDF and IDF loads with dual power supplies, each backed up with generator power. Backup cooling systems on emergency power added to each IDF.		
2)	Arizona State University ISTB 1 Commissioning (Phase 2b of the ASU Redundancy & Reliability Upgrade), Tempe, Arizona	2013	2014
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm The project involves commissioning the systems for the research facility and data center areas affirming “no operational failure” can occur. The commissioning process is to test and verify that any maintenance or equipment failure would result in the system’s sensing the problem and automatically shift to a backup/redundant system.		
3)	Pottawatomie County Courthouse; Westmoreland, KS*	2001	2001
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE <input type="checkbox"/> Check if project performed with current firm Mechanical and electrical engineering. Complete building renovation including large and small courtrooms. Expanded IDf and electrical rooms. PROJECT SIZE: 20,000 sq. ft.		



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a. NAME <b>Jeffrey D. DuBois, PE, FPE, UBT-1</b>	b. ROLE IN THIS CONTRACT Fire Protection Systems Commissioning Specialist/Principal Fire Protection Engineer	c. YEARS EXPERIENCE	
		4. TOTAL 17	2. WITH CURRENT FIRM 7

d. FIRM NAME AND LOCATION (*City and State*)  
 Total Building Commissioning, Tempe, AZ

e. EDUCATION ( <i>DEGREE AND SPECIALIZATION</i> ) B.S. Mechanical Engineering	f. CURRENT PROFESSIONAL REGISTRATION ( <i>STATE AND DISCIPLINE</i> ) Registered Fire Protection Engineer / Arizona / #46296 Registered Professional Engineer in three states including Utah/#265949-2202/2001 Utah Backflow Technician (UBT), Classification Level 1 / Certificate # 11123
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g. OTHER PROFESSIONAL QUALIFICATIONS (*Publications, Organizations, Training, Awards, etc.*)  
 Jeff DuBois, P.E., F.P.E., is a principal and licensed fire protection engineer (F.P.E.) and licensed professional mechanical engineer (P.E.) with 17 years of national design and project management experience in fire suppression systems for new and remodeled projects. His experience includes new fire suppression systems for more than 300 facilities and fire suppression system upgrades for more than 200 remodeled projects. He has overseen engineering services on projects across the country including underground piping systems, fire flow calculations, high piled storage systems, fire alarm systems, and commercial sprinkler systems. Mr. DuBois provides clients strong communication skills and sound engineering judgment, giving him the ability to consistently achieve desired results. He is accustomed to negotiating with building and fire department officials to implement the most effective fire protection for a project while mitigating unrealistic demands placed on the client. Member—National Fire Protection Association (NFPA); Society of Fire Protection Engineers (SFPE); Utah Society of Fire Protection Professionals (USFPP); Consultant/Writer for AIA/MASTERSPEC—sections include clean agents and foam systems.

**H. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION ( <i>City and State</i> )	(2) Year Completed	
		Professional Services	Construction ( <i>if applicable</i> )
1)	Arizona State University Lattie F. Coor Hall Generator Reliability Phase 2B, Tempe AZ	2013	2014
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Total Building Commissioning, is providing the required building commissioning services for achieving a constructed and operating building systems that meets the design intent and occupant's expectations. Commissioning activities are being provided during the Design, Construction and Acceptance Phases of the building delivery process.		
2)	University of Utah Daybreak Specialty Care Center, South Jordan, UT	2011	2011
	(3) BRIEF DESCRIPTION ( <i>Brief scope, size, cost, etc.</i> ) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Principal fire protection engineer/commissioning authority for this approximately \$52 million (budget), 108,000 GSF, 3-story, Type 2A & 2B building. The facility comprises 60% enclosed office / exam room space, 10% open and circulation space, and 30% outpatient surgery space. The facility is designed as a multiservice Medical Office Building including other support services such as pharmaceutical services and cafeteria. The space distribution includes both surgical and clinical components (occupancy codes I and B), and is allocated at approximately 35%/65% respectively. In addition to the building and parking improvements, University AirMed has flight operations and a landing zone incorporated into the development. This is a turn-key project that includes both core & shell construction and tenant improvement build-out. The owner is seeking a Silver Level Certification Standard for LEED® NC 2.2 for New Construction. Mr. Dodd and his team commissioned the following systems: HVAC systems, Building Automation Systems (controls), plumbing and fire suppression systems, electrical systems including "normal" power, emergency power and fire/life safety systems; and security systems.		



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a. NAME <b>Susan Marshall, LEED AP</b>	b. ROLE IN THIS CONTRACT Project Commissioning Authority	c. YEARS EXPERIENCE	
		5. TOTAL 33	2. WITH CURRENT FIRM 3
d. FIRM NAME AND LOCATION (City and State) Total Building Commissioning, Tempe, AZ			
e. EDUCATION (DEGREE AND SPECIALIZATION) B.S. Chemical Engineering		f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Leadership in Energy & Environmental Design Accredited Professional (LEED AP)	

g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)  
 Susan Marshall provides project management, planning, commissioning, and start-up services for commercial, industrial and utility projects. She is experienced in all phases of engineering, from conceptualization and detail design through construction, commissioning and start-up. Ms. Marshall has more than 30 years of international industrial experience including time spent in operations, process trouble shooting, process design, capital project management, construction and facility start-up. She has managed multiple capital projects and led interdisciplinary teams to successfully complete projects on time and within budget. She has a thorough understanding of project planning, incorporation of business objectives, contract negotiation, fiscal and resource projections, monitoring, reporting and controls. Her expertise also includes instrumentation & process control system implementation from large Distributed Control Systems to Building Automation Systems. Ms. Marshall has a wide breadth of experience coordinating teams for mechanical completion, commissioning, start-up and operation optimization for process and instrumentation systems and in Oil and Gas Refining and Storage, Power Plant, Chemical Solvents and Olefins Plants. Ms. Marshall is an experienced LEED® Commissioning Agent for Commercial Facilities and Mechanical Systems. She has served as a Client Representative for both Royal Dutch Shell and Deutsche Energy AG for all aspects of the process control systems design and implementation, from initial system design, through project management, and to on-site system startup and commissioning. Ms. Marshall has excellent written and verbal communications skills with co-workers and clients. She is fluent in both English and German and holds a German and Austrian Visa.

**H. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION (City and State)	(2) Year Completed	
		Professional Services	Construction (if applicable)
	222 South Main, Salt Lake City, UT	2010	2014
1)	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm TBC commissioned the following systems at the 154,000 sq. ft., \$45 million tenant finish of seven floors: Electrical; Mechanical; Fire protection; Security; Building Automation System (BAS). This financial services company has designated the high-rise as a mission-critical regional service center for 1500 associates transferring to the facility in the spring of 2011. The project includes a tenant finish of six office floors, one floor of amenity/conference center space, and several data and technology support spaces. Systems include a 1800 kW dual fuel generator, redundant Uninterruptible Power Supply (UPS) and battery backup, automatic transfer switches on each floor controlled by a programmable logic controller (PLC) and infrastructure upgrades including a new chiller, cooling tower and makeup air handlers. The fit-up of the 154,000 sq. ft. space included a complete under-floor air distribution system and NC 25 sound criteria.		
2)	University of Utah Daybreak Specialty Care Center, South Jordan, UT	2011	2011



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(3) BRIEF DESCRIPTION (*Brief scope, size, cost, etc.*) AND SPECIFIC ROLE

Check if project performed with current firm

Mechanical commissioning authority for this approximately \$52 million (budget), 108,000 GSF, 3-story, Type 2A & 2B building. The facility comprises 60% enclosed office / exam room space, 10% open and circulation space, and 30% outpatient surgery space. The facility is designed as a multiservice Medical Office Building including other support services such as pharmaceutical services and cafeteria. The space distribution includes both surgical and clinical components (occupancy codes I and B), and is allocated at approximately 35%/65% respectively. In addition to the building and parking improvements, University AirMed has flight operations and a landing zone incorporated into the development. This is a turn-key project that includes both core & shell construction and tenant improvement build-out. The owner is seeking a Silver Level Certification Standard for LEED® NC 2.2 for New Construction. Mr. Dodd and his team commissioned the following systems: HVAC systems, Building Automation Systems (controls), plumbing and fire suppression systems, electrical systems including “normal” power, emergency power and fire/life safety systems; and security systems.



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**5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT**

*(Present no more than five (5) projects. Complete one Section 5 for each project.)*

a. TITLE AND LOCATION <i>(City and State)</i> Multi-Agency State Office Building, Salt Lake City, UT	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2008	CONSTRUCTION <i>(If applicable)</i> 2008

**23. PROJECT OWNER'S INFORMATION**

c. PROJECT OWNER State of Utah	d. DOLLAR AMOUNT OF PROJECT \$40,000,000	e. TOTAL COST OF PROJECT \$40,000,000
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(include scope, size, and length of project)*

Spectrum Engineers provided electrical engineering and technology and lighting design for this approximately 180,000 sq. ft., \$40 million (approximate budget) new facility to house Department of Human Services and Department of Environmental Quality and other state agencies. Spaces include a cafeteria, lockers/showers, fitness facility and reception area. The project includes a 700-stall parking lot.

Spectrum Engineers was responsible for the electrical engineering scope of work including all electrical and technology, A/V systems, security systems, card access, CCTV, telecommunications raceway infrastructure, power, lighting, specialty artwork lighting, fire alarm, emergency standby power and exterior lighting.

The building was designed to meet the state's High Performance Design Standards and is beating the energy code by at least 10%. This was accomplished by using occupancy and daylighting controls in the building. Although the budget for this project was tight, Spectrum was able to design a Class A office building lighting system within budget.

Spectrum also designed a temporary power solution for the building that allowed construction and occupancy to occur while Rocky Mountain Power was still upgrading the substation that supplies the building with power.

The office building was designed in a compressed timeframe using multiple bid packages.

Spectrum subsidiary Total Building Commissioning (TBC) was the commissioning authority for this building and commissioned the following systems:

- Electrical
  - Normal power systems
  - Emergency power generators
  - Automatic transfer switching
- Mechanical
  - HVAC systems
  - Energy-related plumbing systems
- Building Automation and Control Systems (BMCS)
  - Building HVAC control systems
  - Lighting control systems
  - Daylight dimming control systems





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**5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT**

*(Present no more than five (5) projects. Complete one Section 5 for each project.)*

b. TITLE AND LOCATION <i>(City and State)</i> Nu Skin Innovation Center and Downtown Expansion Project Commissioning, LEED® Silver, Provo, UT	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i> 2013

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Nu Skin Enterprises	d. DOLLAR AMOUNT OF PROJECT \$100,000,000	e. TOTAL COST OF PROJECT \$100,000,000
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g. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(include scope, size, and length of project)*  
 Total Building Commissioning (TBC) commissioned the \$100 million, 164,000 sq. ft. expansion of Nu Skin's global headquarters in Provo, UT. As the project's commissioning authority, TBC commissioned the building envelope, and:

Data Center-and related systems

- Uninterruptible Power Supply (UPS) systems
- Emergency Power Supply (EPS) systems, including
- Generator
- Automatic transfer switches
- Power distribution systems
- Under floor air leak (integrity) tests—perforated tile and airflow
- All computer room air-conditioning (CRAC) units and associated data center cooling systems
- Hydrostatic testing of sprinkler systems
- Pre-action systems
- Fire alarm system interaction with HVAC systems and fire smoke dampers
- Building management system (BAS)/building automation system (BAS)/direct digital control (DDC) system
- Interior and exterior lighting systems (occupancy sensors, daylight dimming, lighting scenes, lighting controls)

Innovation Center-related systems and equipment

- UPS systems
- EPS systems
- Power distribution systems
- All HVAC systems
- Laboratory ventilation systems
- Laboratory fume hoods
- Fire sprinkler systems, including system pumps and storage tanks
- Pre-action systems
- Fire alarm system interaction with HVAC and fire smoke dampers
- Stairway pressurization systems
- Atrium smoke control
- BMS/BAS/DDC system
- Domestic hot water plumbing systems
- Automatic plumbing systems
- Interior and exterior lighting systems
- Building envelope
- Security systems (CCTV and access control)





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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present no more than five (5) projects. Complete one Section 5 for each project.)

c. TITLE AND LOCATION (City and State)	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
222 South Main, Salt Lake City, UT	2010	2014

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER	d. DOLLAR AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
Financial Services Company	\$45,000,000	\$45,000,000

h. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

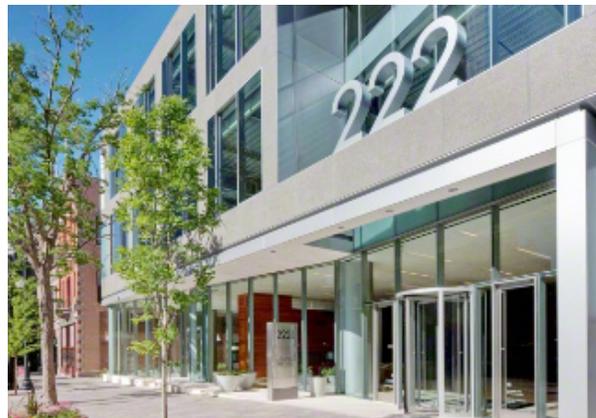
Total Building Commissioning (TBC) commissioned the following systems at the 154,000 sq. ft., \$45 million tenant finish of seven floors at the 222 South Main building in Salt Lake City, Utah:

- Electrical
- Mechanical
- Fire protection
- Security
- Building Automation System (BAS)

This financial services company has designated the high-rise at 222 South Main, Salt Lake City, Utah as a mission-critical regional service center for 1500 associates transferring to the facility in the spring of 2011.

The project includes a tenant finish of six office floors, one floor of amenity/conference center space, and several data and technology support spaces. Systems include a 1800 kW dual fuel generator, redundant Uninterruptible Power Supply (UPS) and battery backup, automatic transfer switches on each floor controlled by a programmable logic controller (PLC) and infrastructure upgrades including a new chiller, cooling tower and makeup air handlers. The fit-up of the 154,000 sq. ft. space included a complete under-floor air distribution system and NC 25 sound criteria.

In addition to commissioning the building systems, Total Building Commissioning conducted generator and UPS burn-in tests, load-bank testing, integrated system testing and several full-project "pull the plug" tests.





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**5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT**

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d. TITLE AND LOCATION <i>(City and State)</i> University of Utah Specialty Care Center at Daybreak, South Jordan, UT	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2011	CONSTRUCTION <i>(If applicable)</i> 2011

**23. PROJECT OWNER'S INFORMATION**

c. PROJECT OWNER University of Utah/Rio Tinto - Land	d. DOLLAR AMOUNT OF PROJECT \$50,000,000	e. TOTAL COST OF PROJECT \$50,000,000
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i. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)  
 The University of Utah Health Care, completed the new Utah Specialty Care Center at Daybreak in late fall 2011. The 208,000-square-foot facility, located at the Daybreak community in South Jordan, Utah, will house primary and emergency health care services including outpatient examination rooms, a surgical center with four operating suites, a pharmacy, a 24-hour-a-day emergency room and an AirMed helicopter landing pad to allow for the transfer of patients to the University of Utah Medical Center. Additionally the facility has been designed to achieve a LEED® Silver certification. The new South Jordan Health Center will offer specialty care in the areas of cardiology, dermatology, gastroenterology, neurology, obstetrics and gynecology, oncology, optometry, orthopedics, physical therapy, psychiatry, and radiology, as well as being the first phase of a larger planned medical campus.

Systems Commissioned:

- HVAC
- Building Automation System (BAS)
- Fire Protection
- Lighting Controls
- Electrical/Emergency Power
- Security
- Fire alarm and Protection Systems
- Mass notification system
- Nurse Call





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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present no more than five (5) projects. Complete one Section 5 for each project.)

e. TITLE AND LOCATION (City and State) Arizona State University ISTB1 Commissioning (Phase 2B of the ASU Redundancy & Reliability Upgrade), Tempe, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION (If applicable) 2014 (expected)

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Arizona State University	d. DOLLAR AMOUNT OF PROJECT \$5,000,000	e. TOTAL COST OF PROJECT \$5,000,000
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j. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

This existing building is a LEED® Gold Certified Building classified as a Critical “C1” building. Includes a data center serving the entire campus with a “U3” classification. ISTB 1 also houses the ASU Vivarium Research unit and Nuclear Magnetic Resonance (NMR) along with other research areas. The project involves commissioning the systems for the research facility and data center areas affirming “no operational failure” can occur. The commissioning process is to test and verify that any maintenance or equipment failure would result in the system’s sensing the problem and automatically shift to a backup/redundant system. Building systems were originally designed to incorporate these failsafe systems without any downtime allowed. Though this building was fed with steam and chilled water from a campus central plant and alternate CHP, all were considered as “failable” and the design intent dictated that ISTB 1 would operate independently of any fuel, electric or temperature transfer media. The project consists of upgrading the existing HVAC and electrical infrastructure to include a complete local redundant chilled water, air handler, hydronic and electrical system. Mechanical modifications and commissioning included:

- New Chiller
- Existing Heating Hot Water Pumps
- Existing Steam Condensate Pump
- Existing Air Handlers 3 & 4
- Existing Air Handlers 5 & 6 with related VAV boxes and damper controls
- New computer Room air handler systems
- Existing computer room air handler systems to be relocated
- Existing computer room air handler systems to remain
- (12) Existing Exhaust Systems (verify operation when the equipment is transferred to the generator)
- Energy Management Control System/Building Automation Controls
- Simulate failure of Central Plant or CHP chilled water system.
- Verify automatic monthly maintenance sequence

Electrical modifications and commissioning included:

- New Standby Generator System
- (6) Automatic Transfer Switches
- (6) Automatic Transfer Switches on existing CRAH units
- Liebert Transfer devices on new CRAH units
- Integrated Systems Verification
- Simulate power failure of normal power system and verify operation of all critical equipment.
- Simulate power failure of critical power system and verify operation of all critical equipment.
- Pull the Plug, Emergency Power Verification (Includes verification of critical mechanical equipment pertaining to this project)
- Verify monthly generator test and transfer load procedure.





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**5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT**

*(Present no more than five (5) projects. Complete one Section 5 for each project.)*

f. TITLE AND LOCATION <i>(City and State)</i>	b. YEAR COMPLETED	
Arizona State University COOR Reliability Phase 2 Upgrades Commissioning, Tempe, AZ	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i> 2014 (expected)

**23. PROJECT OWNER'S INFORMATION**

c. PROJECT OWNER Arizona State University	d. DOLLAR AMOUNT OF PROJECT \$1,600,000	e. TOTAL COST OF PROJECT \$1,600,000
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**k. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT** *(include scope, size, and length of project)*

TBC is currently providing commissioning services for Coor Hall to ensure the systems being are designed for reliability are functioning properly. Coor Hall is home to advance mediated classrooms, traditional classrooms, open computer labs, research, survey research, special purpose facilities and offices. TBC is commissioning new redundant system A/system B UPS systems and distribution to MDF and IDF loads with dual power supplies, each backed up with generator power. Backup cooling systems on emergency power were added to each IDF.





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**5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT**

*(Present no more than five (5) projects. Complete one Section 5 for each project.)*

g. TITLE AND LOCATION <i>(City and State)</i>	b. YEAR COMPLETED	
Tracy Aviary Education & Guest Services Building Commissioning, Salt Lake City, UT—LEED® Gold	PROFESSIONAL SERVICES 2011	CONSTRUCTION <i>(If applicable)</i> 2012

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Salt Lake County	d. DOLLAR AMOUNT OF PROJECT \$11,900 fee	e. TOTAL COST OF PROJECT \$11,900 fee
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i. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

The Guest Services and Education Building at Tracy Aviary is a (design-build) new two-story, 10,800 sq. ft. facility that has earned LEED® Gold. Visitors enter the aviary through the guest services portion of the building—a new and improved entrance point into the aviary experience. In addition to the visitor entrance, Guest Services houses ticketing, the nature store, employee workstations, storage areas and retail sales. The education portion of the facility features community connectivity through a flexible classroom/meeting space. Other features of the project overall include reduced water use, natural ventilation, use of sustainable materials, energy efficiency and recycling.

Awards

2012 AIA Merit Award  
 2012 Award of Merit, *ENR Mountain States*, Small Project (Under \$10 Million)





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**5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT**

*(Present no more than five (5) projects. Complete one Section 5 for each project.)*

h. TITLE AND LOCATION <i>(City and State)</i> Utah State University Wetlands Discovery Lab at Utah Botanical Center, Kaysville, UT	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2008	CONSTRUCTION <i>(If applicable)</i> 2009

**23. PROJECT OWNER'S INFORMATION**

c. PROJECT OWNER Utah State University	d. DOLLAR AMOUNT OF PROJECT \$1,500,000	e. TOTAL COST OF PROJECT \$1,500,000
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m. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(include scope, size, and length of project)*

The Wetlands Discovery Lab is a 3200 sq. ft. hands-on nature discovery facility operated by Utah State University. It houses a classroom and offices as well as restroom facilities and showers, a mechanical room and storage areas. A glass hallway offers views of and information about the wetland area and connects the Discovery Lab to a boardwalk that takes visitors across portions of the wetlands including a pond.

The Discovery Point earned LEED® Platinum and features sustainable building materials. It is designed to conserve energy through a high-efficiency ground-source heat pump for heating and cooling, in-floor radiant heating and natural ventilation with ceiling fans. A photovoltaic array provides solar water heating and solar power generation for the building. Water conservation techniques include rainwater harvesting.

TBC, the commissioning authority, commissioned all energy-related systems including:

- Heating
- Air conditioning
- Mechanical
- Plumbing (including solar water heating systems)
- Electrical systems (including power and solar)





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**5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT**

*(Present no more than five (5) projects. Complete one Section 5 for each project.)*

i. TITLE AND LOCATION <i>(City and State)</i>	b. YEAR COMPLETED	
Various Projects at Hill Air Force Base, Layton, UT	PROFESSIONAL SERVICES Varies	CONSTRUCTION <i>(If applicable)</i> Varies

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Hill Air Force Base	d. DOLLAR AMOUNT OF PROJECT Varies	e. TOTAL COST OF PROJECT Varies
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n. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

**Hill Air Force Base Fire Station Commissioning, HAFB, UT**

TBC provided building commissioning for this three-bay fire station at Hill Air Force Base. The project includes “Enhanced Commissioning” per USGBC 2009 Design Guide, development of Re-commissioning Manual, and end-of-warranty/post-occupancy review.

**Hill Air Force Base Building 230 Commissioning, HAFB, UT**

TBC provided building commissioning of this metal shop at Hill Air Force Base. This includes LEED® Energy and Atmosphere Prerequisite 1: Fundamental Commissioning of the Building Energy Systems focusing on the HVAC system.

**Hill Air Force Base Fitness Center Commissioning, HAFB, UT**

TBC was the commissioning authority for this \$10 million (estimated total construction cost), 64,500 sq. ft. (approximate), state-of-the-art physical fitness and health and wellness center at Hill Air Force Base completed in 2008. The fitness center includes sport courts, racquetball courts, fitness areas, group exercise areas, running tracks (indoor and outdoor), 30-foot climbing wall, health/wellness area, locker rooms and support functions including offices. TBC commissioned the following systems:

Mechanical/HVAC systems

- Heating
- Cooling
- Humidifying
- Controls systems

**Hill Air Force Base Aircraft Power Systems Repair Facility, HAFB, UT**

TBC commissioned this one-story, pre-engineered repair facility at Hill Air Force Base. Commissioned systems include: HVAC systems (air-conditioning equipment, chiller, boilers, infra-red radiant tube heaters, fans, pumps, ducts, piping, Building Automation System, building/space pressurization, miscellaneous HVAC equipment—unit heaters, fans, etc. Test Adjust and Balance spot verification, fire/smoke dampers, etc.). Fundamental commissioning of building systems including: furnaces, condensing units, make-up air unit, air handlers, exhaust fans, infra-red heater, pumps, boilers, chiller, etc.

**Hill Air Force Base Software Support Facility (Addition to Building 1515), HAFB, UT**

TBC was the commissioning authority for this \$37 million, 72,500 sq. ft., two-story addition to Building 1515. The facility includes space for software development and laboratory testing of computer systems. Twelve classified labs with raised floor areas are provided as is a loading dock and receiving area. The facility requires classified security systems, wiring and communication lines and includes antiterrorism force protection (AT/FP).

TBC developed the commissioning plan and coordinated the installation checklists as well as the functional performance tests for the mechanical systems. TBC also conducted weekly on-site commissioning meetings to coordinate the efforts of the commissioning team members. TBC produced a final commissioning report when the testing was completed.



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**6. ADDITIONAL INFORMATION**

a. PROVIDE ANY ADDITIONAL INFORMATION YOU FEEL MAY BE NECESSARY TO DESCRIBE YOUR FIRMS QUALIFICATIONS. (ATTACH ADDITIONAL SHEETS AS NEEDED.)

**TBC Firm Profile**

Total Building Commissioning, Inc. (TBC) specializes in the commissioning of multiple building systems including heating, ventilating and air conditioning systems, building automation systems, life safety/fire protection systems, domestic and process water systems, emergency power systems, lighting control systems, security systems and building envelope to ensure that each systems' performance complies with the design intent and the building's functional, operational, and maintenance needs.

TBC and its predecessor firms have over 28 years experience related to design, construction, commissioning, energy-efficiency consulting, and building automation-controls consulting. Our professionals have the education, training and hands-on experience to meet your commissioning requirements. Our commissioning experts help to ensure that your facility works as it was intended because we understand the theory, implementation and operating and maintenance issues associated with the application of the specialized systems planned for your facility. We'll be there during each critical step of the building process. From planning, through design, construction, acceptance testing, turnover and operation, including operation and maintenance training, TBC is a dedicated advocate for the owners and the users, facilitating your design goals.

TBC uses an integrated commissioning approach, helping to ensure that buildings and the systems within it function as you envisioned. We offer true, lifecycle total building commissioning. TBC's professionals will not disappear after the construction of your facility. We remain involved throughout the warranty period. This approach saves you time, money, worry and hassle. TBC also has provided LEED® commissioning services for nearly two dozen projects seeking LEED® certification in the past three years with one recently awarded LEED® Platinum certification and several others currently seeking LEED® Platinum.

Total Building Commissioning is a BCA and ACG member firm.

**The Total Building Commissioning Philosophy**

Our ultimate goal is the success of the project for owners and the installing contractors alike. We believe that the benefits of commissioning—on-time and in-budget projects, meeting performance goals, improved coordination, zero call-backs, energy optimization and having a repeatable quality assurance process provides measurable value for every stakeholder in your project.

We are *highly visible* and present throughout the process. We are involved in the design, continually reviewing that the project adheres to the requirements set forth by the owner and that the construction documents support clear communication, maintainability and commissionability of the systems. We will be continually present throughout the construction process keeping a running issues log so the resolution of issues is current as the project moves into the near-completion phase. Our involvement becomes more intense as equipment passes the installation checklist phase, is started up, balanced, and readied for functional testing. The TBC approach embodies the term: *continuous commissioning*.

We bring to the project total building commissioning specialists who understand the design of systems as well as common construction challenges. We can provide commissioning authorities in HVAC, electrical systems, technology systems commissioning, lighting control, security, fire protection, and AV as well as the building envelope.



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7. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

a. Percentage of Total Work Attributable to State, Federal and Municipal Government Work:	40%
b. Percentage of Total Work Attributable to Non-Government Work:	60%

8. AUTHORIZED REPRESENTATIVE. The foregoing is a statement of facts.

Signature: Todd Watson

Date: December 21, 2015

Name: Todd A Watson, Cx, QCxP, LEED AP

Title: Commissioning Authority